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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/083,161

02/27/2002

Hiroaki Kimura

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7590

03/30/2004

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EXAMINER

PEIKARI, BEHZAD

ART UNIT

PAPER NUMBER

2186

DATE MAILED: 03/30/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,161

Applicant(s)

KIMURA ET AL.

Examiner

B. James Peikari

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2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to because of numerous informalities, some of which are recited below:

- (a) In Figures 1A and 2B, "MISS" should replace "MISS-HIT".
- (b) In Figure 1A, "MAIN MEMORY DEVICE" is labeled both "3" and "33".
- (c) In Figure 1C, step S20, "VALID" should replace "VALIDTY".
- (d) In Figure 6, the text is too small (see 37 CFR 1.84).
- (e) In Figure 7, elements 39 and 85 should be labeled (e.g., "DAT").
- (f) In Figure 8, element 62 should be labeled.
- (g) In Figure 10, element 39 should be labeled.
- (h) In Figure 11, element 61 should be labeled.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
4. A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. Much of the specification appears to be a literal translation into English from the Japanese priority document and is replete with grammatical and idiomatic errors. The substitute specification must be accompanied by a statement that it contains no new matter.

Claim Objections

5. Claims 1-8 are objected to because they contain similar errors in grammar and English idiom as described above for the specification. For example, claim 1 could be corrected as follows:

1. An apparatus for controlling a cache memory that stores data, said apparatus provided with protection via a storage key to permit access to data stored in the cache, said apparatus comprising:

- a requesting device that requests said storage key;
- a control device that initiates a retrieval of the data stored in the cache without waiting for said requested storage key to be received; and
- a transfer device for transmitting the data retrieved from the cache.

Appropriate correction is required for all of the claims.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Some examples include:

(a) In claim 1, line 3, the antecedent basis of "data" is unclear, i.e., it is unclear whether this is the same data that is stored in the cache in line 1.

(b) In claim 3, lines 13-14, "retrieves the translation lookaside buffer device" is not understood.

(c) In claim 5, "continuously transforms" is unclear; it appears that "transforms" should be replaced by "translates", but the scope of "continuously" remains unclear.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Hilton et al., U.S. 5,603,008.

The claims teach a cache memory system that utilizes a translation lookaside buffer for determining the correspondence between logical and physical addresses in the cache and a storage key for protection of the data. Such systems were widely known and in common use at the time of the invention. In most systems that used a storage key to protect cached data, receipt of the storage key was a necessary step to gain access to the cached data.

The feature that sets the present invention apart the majority of such prior art systems is the initiation and completion of the retrieval of cache data *prior* to the arrival of the storage key. However, this additional feature was clearly taught by Hilton et al. Note storage key array 26, TLB 25 and logical to physical address translator 55, access to the data in the cache memory system depicted as Figure 3, as well as the initiation and completion of the retrieval of cache data *prior* to the arrival of the storage key, e.g., in column 2, lines 7-20, with the result that the access time is reduced.

10. Claims 1-6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Osone et al., JP 02285440 A.

The claims teach a cache memory system that utilizes a translation lookaside buffer for determining the correspondence between logical and physical addresses in the cache and a storage key for protection of the data. Such systems were widely known and in common use at the time of the invention. In most systems that used a

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storage key to protect cached data, receipt of the storage key was a necessary step to gain access to the cached data.

The feature that sets the present invention apart the majority of such prior art systems is the initiation and completion of the retrieval of cache data *prior* to the arrival of the storage key. However, this additional feature was clearly taught by Osone et al. Note use of a storage key (on page 4 and in Figure 2), the TLB and the DAT translator, access to the data in the cache memory 8, as well as the initiation and completion of the retrieval of cache data *prior* to the arrival of the storage key, note the translated abstract.

Allowable Subject Matter

11. Claim 7 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. None of the cited references teach the claimed double searching of the TLB.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Peikari whose telephone number is (703) 305-

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3824. The examiner is generally available between 8:00 am and 9:30 pm, EST, Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim, can be reached at (703) 305-3821.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 746-7239 (Official communications)

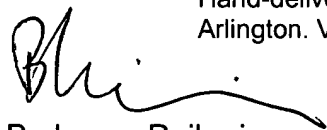
or:

(703) 746-7240 (for Informal or Draft communications)

or:

(703) 746-7238 (for After-Final communications)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).



B. James Peikari
Primary Examiner
Art Unit 2186

3/21/04